

**REMARKS**

Applicant respectfully requests further examination and reconsideration in view of the arguments set forth fully below. Claims 1-132 were previously pending. Of the above claims, claims 14-24, 36-46, 58-69 and 71-132 were previously withdrawn from consideration. In the Office Action mailed September 16, 2005, claims 1-13, 25-35, 47-57 and 70 have been rejected or alternately withdrawn from consideration. Because the prior-filed amendment was not properly considered or entered, the above amendment is identical to the amendment submitted in the Response filed August 29, 2005. The Applicants respectfully, but strongly, traverse this action for the reasons set forth fully below.

**Response to Restriction/Election**

Within the Office Action, claims 1-13, 25-35, 47-57 and 70 as amended in the response filed August 29, 2005 (“the newly amended claims”) were withdrawn by the Examiner as being directed to an invention independent or distinct from the invention originally claimed. The reasoning for the refusal to enter is flawed. The contention that “the amended claims do not read on Applicant’s election of Species X (Fig. 10) [because] the amended limitations have not been disclosed in Fig. 10,” does not demonstrate why the newly amended claims are directed to a different invention than were the original claims, and in fact cannot so demonstrate. In fact the claims include each and every element of the previous claims and only additional elements are added. As such, **the claims necessarily cover the identical invention previously claimed, but with further elements.** Accordingly, the applicants renew their request for consideration of the previously filed amendment and respectfully request that the finality of the rejection be withdrawn.

No support is provided for the proposition that adding limitations to the claims somehow eliminates other limitations in the claims. Indeed, there is no reasonable support for such a proposition. The elected invention included, among other things compressible objects provided for reducing a volume until compressed. Those compressible objects are still in the claims after the amendment; indeed no element, nor even a single word (other than the word “and” which was merely moved within a claim) is cancelled from the amended claims.

The Office Action also includes a contention that, since the Applicants have received an action of on the merits for the originally presented invention, this invention has been

constructively elected by original presentation for prosecution on the merits. The doctrine of original presentation appears to relate only to claims and thus has no bearing in this matter, since an explicit election has already been made. See MPEP §821.03 (Referring to the invention “originally claimed.”) In this case, because the claims 1-13, and 25-35 are generic over at least one species other than species X, their original presentation would not constitute an election of only the subject matter of species X.

The election of species X, compressible objects disposed in fluid segments of a cooling loop, does not exclude limitations discussed as associated with systems such as the one of FIG. 10 elsewhere in the specification. Note that in lines 10-12 of page 15, the specification discusses the inclusion of various techniques for freeze prevention discussed elsewhere within the system of FIG. 10. The fact that FIG. 10 does not explicitly illustrate the added limitations is not a valid argument against their inclusion in a claim to an invention within the species represented by FIG. 10. If it were, prosecution following an election of species would essentially be moot, as an Applicant would be unable to rely on the full breadth of disclosure relating to the elected species to support narrowing amendments to claims. The Applicant’s right to limit claims by amendment is well settled. See In re Wertheim, 541 F.2d 257, 263 Should the Examiner disagree, he is invited to point out where case or statutory law proscribes an Applicant’s right to narrow a claim to a species based on anything other than the original figure representing that species.

For at least these reasons, the Applicants traverse the propriety of the holding that claims 1-13, 25-35, 47-57 and 70 as amended in the Response of August 29, 2005 do not read on Applicant’s elected species X. Should the Examiner disagree, the Applicants point out that the Board of Patent Appeals and Interferences has noted that this decision is appealable and directed that the Examiner should “reject the claims...on the ground that they are not directed to the elected subject matter” (instead of reasserting a withdrawal). See Ex Parte Jan-Ivar Arvidsson Appeal No. 95-3114, 1997 WL 1883768 (Footnote 4, discussing MPEP §821.)

### **Unconsidered Claims**

The Office Action was unresponsive to new claims 133 and 134 presented within the Applicants previous response. The withdrawal of claims as drawn to a non-elected invention was not applied to these new claims. The Applicants believe these claims are in condition for allowance over Oberholzer (described below) because Oberholzer fails to teach, disclose, or even suggest a system in which compressible objects are directly exposed to a liquid without an

intervening membrane. The Applicants hope that these claims will be properly addressed within the next Office Action.

**Rejections Under 35 U.S.C. § 102**

*The remarks below are identical to those made within the previous response, and relate to the identical amendments included above.*

Within the Office Action, Claims 1, 2, 4-13, 25, 26, 28-35, 47, 48, 50-57 and 70 have been rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent Number 6,119,729 to Oberholzer et al. (hereinafter "Oberholzer"). Applicant respectfully traverses this rejection.

The cited portion of Oberholzer describes a freeze protection apparatus for a solar thermal collector. A freeze-protected conduit 14 includes a compressible insert 20 which comprises a compressible elastomeric material that is fully sealed on all its sides and ends by a liquid impermeable membrane 18. Furthermore, Oberholzer discloses using freeze-protected conduits throughout the solar thermal collector:

Every fluid passage in solar thermal collector 50 may be adapted for use with the freeze protection apparatus of the present invention. Referring to FIGS. 6 and 7, a section of a typical fluid passage 80 is shown adapted for use with the freeze protection apparatus of the present invention by defining such fluid passage 80 with flexible conduit 82 wherein flexible conduit 82 is disposed within rigid structural support member 84. Also disposed within rigid structural support member 84 is compressible elastomeric material 88. [Column 8, Lines 10-19]

The system disclosed in the cited portion of Oberholzer has compressible elements in every portion of the system that can be exposed to cold temperature conditions. These portions are first to freeze during exposure to cold temperature conditions.

Fluid passages between the collector unit 50 and supply line 64 (FIG. 6), including supply manifold 66, and within supply line 64, may be exposed to cold temperature conditions to some extent. The same is true with respect to fluid passages between collector unit 50 and return line 76, including return manifold 74, and within return line 76. In this respect, where such fluid passages are exposed to cold temperature conditions, the corresponding conduit is protected from freeze carnage by the present invention. [Column 8, Lines 46-53]

Thus, the system does not place compressible objects at locations which freeze later. Further, the compressible objects used in Oberholzer include a compressible element and a separate membrane element.

The present invention relates to systems and methods to prevent cracking in a liquid system. These include methods and systems where compressible objects are disposed in enclosures within a liquid system and where the systems are configured to select locations where

the liquid begins to freeze in the enclosure, and to arrange for freezing to start from the locations and advance towards the compressible objects. Unlike the present invention, the cited portion of Oberholzer does not disclose or even suggest a system with an apparatus configured to cause a fluid to begin to freeze at selected locations, and for freezing to advance towards one or more compressible objects. In addition, the present invention discloses embodiments in which the compressible objects do not include a separate membrane element, a feature which the cited portion of Oberholzer does not describe. The new claims recite limitations related to this feature.

The amended independent Claim 1 is directed to an apparatus for preventing cracking of a liquid system. The apparatus includes at least one heat exchanger; at least one inlet port extending through a first opening for conveying a fluid to a plurality of channels and passages; at least one outlet port extending through a second opening for discharging the fluid from the plurality of channels and passages; and one or more compressible objects coupled to the inlet and outlet ports in an unpressured condition such that the compressible objects reduce a volume of the inlet port and the outlet port and further wherein pressure exerted on the compressible object increases a volume of the inlet port and the outlet port; wherein, the heat exchanger is configured so that the fluid in the inlet port and the outlet port freezes later than the fluid elsewhere in the heat exchanger, and for freezing to advance towards the one or more compressible objects. As described above, the cited portion of Oberholzer does not disclose or even suggest a system with an apparatus configured to cause a fluid to begin to freeze at selected locations, and for freezing to advance towards one or more compressible objects. For at least these reasons, the independent Claim 1 is allowable over the teachings of Oberholzer.

Claims 2-13 are all dependent on the independent Claim 1. As discussed above, the independent Claim 1 is allowable over the teachings of Oberholzer. Accordingly, the dependent Claims 2-13 are all also allowable as being dependent on an allowable base claim.

The amended independent Claim 25 is directed to an apparatus for preventing cracking of a liquid system. The apparatus comprises an enclosure; and one or more compressible objects immersed in the enclosure. Further, the enclosure is configured to cause a fluid to begin to freeze at one or more locations in the enclosure, and for freezing to advance towards the one or more compressible objects. As described above, the cited portion of Oberholzer does not disclose or even suggest a system with an apparatus configured to cause a fluid to begin to freeze at selected locations, and for freezing to advance towards one or more compressible objects. For at least these reasons, the independent Claim 25 is allowable over the teachings of Oberholzer.

Claims 26-35 are all dependent on the independent Claim 25. As discussed above, the independent Claim 25 is allowable over the teachings of Oberholzer. Accordingly, the dependent Claims 26-35 are all also allowable as being dependent on an allowable base claim.

The amended independent Claim 47 is directed to a method of preventing cracking of a liquid system. The system includes one or more pumps and one or more heat exchangers. The method comprises the steps of providing an enclosure; immersing one or more compressible objects in the enclosure; configuring the enclosure to cause a fluid to begin to freeze at one or more locations in the enclosure, and for freezing to advance towards other locations in the enclosure; and immersing one or more compressible objects in the enclosure at the other locations. As described above, the cited portion of Oberholzer does not disclose or even suggest a system with an apparatus configured to cause a fluid to begin to freeze at selected locations, and for freezing to advance towards one or more compressible objects. For at least these reasons, the independent Claim 47 is allowable over the teachings of Oberholzer.

Claims 48-57 are all dependent on the independent Claim 47. As discussed above, the independent Claim 47 is allowable over the teachings of Oberholzer. Accordingly, the dependent Claims 48-57 are all also allowable as being dependent on an allowable base claim.

The amended independent Claim 70 is directed to an apparatus for preventing cracking of a liquid system. The system includes one or more pumps and one or more heat exchangers. The apparatus comprises an enclosure, wherein the enclosure being capable of contracting and expanding between a minimum volume condition and a maximum volume condition with fluid expansion during freezing, and further wherein the enclosure is configured to cause a fluid to begin to freeze at one or more locations in the enclosure, and for freezing to advance towards other locations in the enclosure. As described above, the cited portion of Oberholzer does not disclose or even suggest a system with an apparatus configured to cause a fluid to begin to freeze at selected locations, or for freezing to advance towards one or more compressible objects. For at least these reasons, the independent Claim 70 is allowable over the teachings of Oberholzer.

### **Rejections Under 35 U.S.C. § 103**

*The remarks below are identical to those made within the previous response, and relate to the identical amendments included above.*

Within the Office Action, Claims 3, 27 and 49 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Oberholzer.

Claim 3 is dependent on the independent Claim 1. As discussed above, the independent Claim 1 is allowable. Accordingly, the dependent Claims 3 is also allowable as being dependent on an allowable base claim.

Claim 27 is dependent on the independent Claim 25. As discussed above, the independent Claim 25 is allowable. Accordingly, the dependent Claims 27 is also allowable as being dependent on an allowable base claim.

Claim 49 is dependent on the independent Claim 47. As discussed above, the independent Claim 47 is allowable. Accordingly, the dependent Claim 49 is also allowable as being dependent on an allowable base claim.

For the reasons given above, Applicant respectfully submits that the Claims 1-13, 25-35, 47-57, 70, 133, and 134 are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,  
HAVERSTOCK & OWENS LLP

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CERTIFICATE OF MAILING (37 CFR § 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

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